

ABSTRACT

The present invention provides an apparatus and method for compensating for the variation of a gain spectrum attributable to the temperature variation of a fiber amplifier, and a long-wavelength band dispersion-compensating hybrid amplifier equipped with the gain spectrum compensating apparatus. The apparatus includes a DCF located between a first amplification stage and a second amplification stage to compensate for dispersion of an optical signal output from the first amplification stage and perform Raman amplification of the optical signal using input pumping light; at least one pumping light provision means for providing forward or backward pumping light to the DCF; first and second temperature detection means for detecting temperature variations of the first and second amplification stages, respectively; and control means for controlling intensity of the pumping light of the pumping light provision means according to the detected temperature variations.